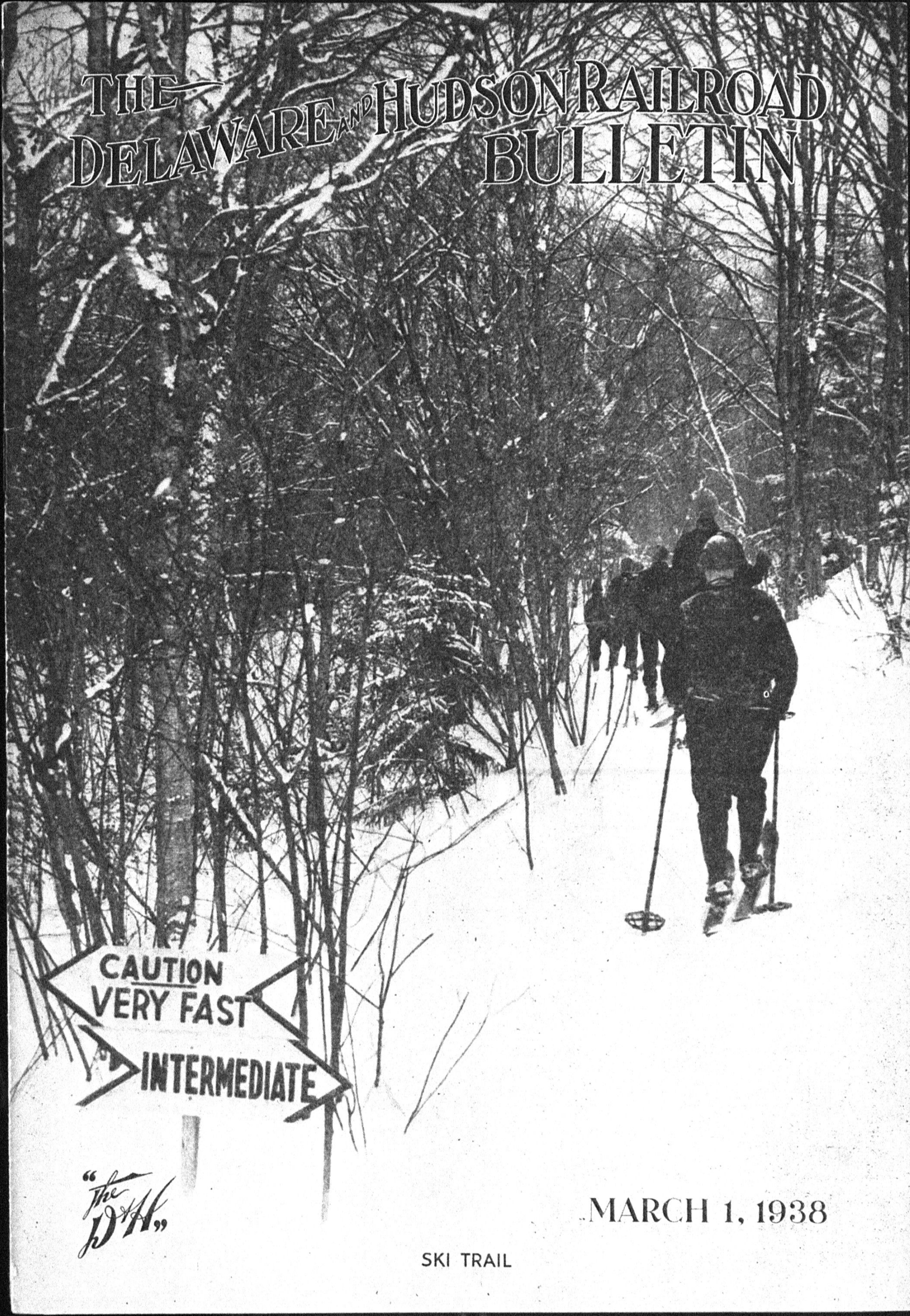
THE DELAWARE AND HUDSON RAILROAD BULLETIN



"The D&H"

MARCH 1, 1938

SKI TRAIL

Opportunity

THEY do me wrong who say I come no more
When once I knock and fail to find you in;
For every day I stand outside your door,
And bid you wake, and rise to fight and win.

Wail not for precious chances passed away,
Weep not for golden ages on the wane;
Each night I burn the records of the day;
At sunrise every soul is born again.

Laugh like a boy at splendors that have sped,
To vanished joys be blind and deaf and dumb;
My judgments seal the dead past with its dead;
But never bind a moment yet to come.

Though deep in mire wring not your hands and weep;
I lend my arm to all who say "I can!"
No shamefaced outcast ever sank so deep
But yet might rise again and be a man!

Dost thou behold thy lost youth all aghast?
Dost reel from righteous retribution's blow?
Then turn from blotted archives of the past
And find the future's pages white as snow.

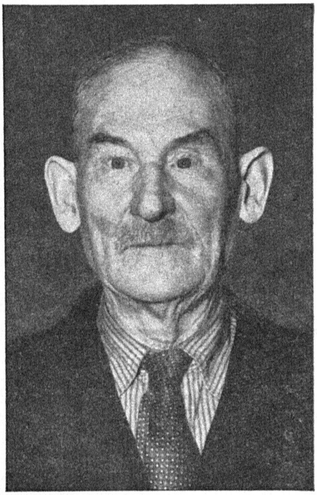
—ANONYMOUS.

The
DELAWARE AND HUDSON RAILROAD
CORPORATION
BULLETIN

Riding Swift Stagecoaches

Through Adirondack Forests Was Pastime of Summer Hotel Guests in 1895

RIDING swift, six-horse stagecoaches over rough, winding, Adirondack Forest roads was a favorite pastime of summer guests of the Hotel Champlain, Bluff Point, N. Y., in 1895, according to retired CREW DISPATCHER, OVID S. BENJAMIN. That year he was in charge of the passenger train which backed over the single track from Plattsburg to Bluff Point each morning to pick up from 20 to 70 people. At Plattsburg many of them changed to the Chateaugay train to go to Saranac Lake from which point they rode the stage through the forests to Ausable Forks. Not only was this a thrilling ride but almost every trip the passengers saw deer, bear, and other game animals in their native haunts.



OVID S. BENJAMIN

Meanwhile, MR. BENJAMIN'S train would make the 24-mile run from Plattsburg to Ausable Forks to pick the passengers up for the return trip to Bluff Point and Plattsburg. After main line train No. 3 and the Chateaugay train had arrived in Plattsburg, MR. BENJAMIN made another round trip to Bluff Point with guests for the hotel.

Aside from summer vacation jobs, MR. BENJAMIN never worked for any company but The Delaware and Hudson. Born at Whitehall, April 18, 1866, the son of a conductor, OVID was hired as a "number taker" or yard clerk September 15, 1883, by L. M. Rich, local agent and yard master. Working from 6 A. M. until 6 P. M., he had to take the number of every car arriving at Whitehall, as well as the seal numbers on all loaded cars.

The car seals then in use consisted of a piece of lead, the approximate size and shape of a penny, with a length of wire attached. To seal a car the free end of the wire was run through the door hasp and inserted in a hole in the seal. A sealer, a pincer-shaped device, was then used to squeeze the seal, locking the free end of the wire inside. A die on one face of the sealer pressed the number of the station on the seal. Seals were not individually numbered then as at present; each station had a number which appeared on all seals applied by its force.

Whitehall yard consisted of one main and only five yard tracks when MR. BENJAMIN first went to work in 1883. However, less space was needed for a given number of cars then as most rolling stock was less than 30 feet long—33-foot units were rare indeed.

In 1885, MR. BENJAMIN was given a job as yard brakeman by J. H. Whitney, Whitehall's first yard master, and for four years MR. BENJAMIN worked in the yard, making up trains for the north, south, and east. The tonnage system of computing the length of freight trains was not yet in use then; the general rule was to give southbound freights 40 loaded cars, 24 was a train for the north, and 10 for the east, more or less being given crews depending on the weight of the loads. East- or Rutland-bound freights were sometimes given more with the knowledge that they would "double" the hills as many times as necessary.

On the day of the summer timetable change in June 1889, he was promoted to the rank of conductor and was called to take a freight train to Mohawk, a trip he will never forget. The main line was then single track to Saratoga; double to High Street, Ballston; single to Glenville; and the balance double. With a new summer timetable in effect, calling for passenger trains at frequent intervals, they seemed to spend most of their time in sidings. At Saratoga, for instance, they waited for one passenger train to go, then stalled trying to get out of the yard. By the time they had found a yard engine to help them get started, they had to clear the main track for another passenger train.

Although each "rounder" crew had its own caboose, it was possible to distinguish one from another at night by the number of red lights displayed on the rear end. Lacking definite instructions, each conductor hung as many lanterns on his caboose as suited his fancy. MR. BENJAMIN used two; one man had a special frame built on which he hung *nine* red lights; others displayed from three to eight.

After running the Bluff Point passenger train already mentioned through the summer of 1895, MR. BENJAMIN took a Whitehall-Rouses Point freight run for the fall and winter. Arriving in Rouses Point one night, Assistant Superintendent H. C. North asked MR. BENJAMIN to act as yard master for a week or ten days because of the illness of Yard Master "Phil" Long. That "week or ten days" turned out to be ten months.

When relieved of the duties of yard master at Rouses Point, MR. BENJAMIN was sent to Green Island to operate excursion trains through the summer. He and CONDUCTOR FRANK TARIO were kept busy with these specials running from Troy, Albany, and other Capital District points to Lake George, North Creek, Ausable Forks, Ballston Lake, Saratoga and, when one was scheduled for Montreal, they ran to Rouses Point. One excursion train operated to Ausable Chasm that year, sponsored by the Business Men's Association of Cohoes, consisted of two 18-car sections. The Delaware and Hudson took Ausable Chasm excursion trains to Port Kent, turning them over there to the Keeseville, Ausable Chasm and Lake Champlain Railroad.

For ten years, beginning in 1905, MR. BENJAMIN was conductor of the "Ticonderoga Job" making ten passenger trips daily between Ticonderoga and Montcalm Landing, on Lake Champlain, in addition to doing all the switching on the Ticonderoga and Baldwin branches. In 1915, he took the Whitehall-Plattsburg local freight which made one 90-mile one-way trip daily, starting out with an average of 25 cars and handling as many as 50 more en route. While on this run MR. BENJAMIN lost the sight of one eye and was therefore unable to continue in the train service.

For a time after his return to work MR. BENJAMIN served as night clerk in the Whitehall freight house, then, for two years, as turntable operator at the local roundhouse, and, in 1920 he was appointed crew dispatcher at Whitehall, the position he held for the 15 years prior to his retirement.

MR. and Mrs. BENJAMIN, who live at 3 Queen Street, Whitehall, have five children: Mrs. Carlton Harvey and Miss Beula Benjamin, of Albany; Mrs. Charles Bates, Mrs. Howard Fish, and Charles Benjamin, all of Whitehall. MR. BENJAMIN is a member of The Delaware and Hudson Veterans' Association, the Brotherhood of Railroad Trainmen, the Order of Railroad Conductors, and the Masons.

On the R. & S.

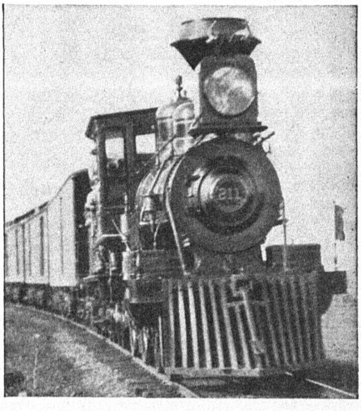


Photo Loaned by Retired Conductor C. G. Thayer

New York State Constitutional Convention

ONCE in every twenty years the State of New York takes an inventory of the provisions of its Constitution by holding a Constitutional Convention. Such a Convention will meet in Albany on April 5th, next, and it is probable that the summer will have come and gone and autumn will have made its appearance before the Convention completes its labors.

In the fall of 1936, the question as to whether a State Constitutional Convention should be held was submitted to the voters of the State and the response was in the affirmative by a majority of about 225,000 votes. As a consequence of this action, delegates were elected to the Convention at the regular election last fall.

Representation in the Convention consists of fifteen delegates-at-large elected from the entire state, and 153 district delegates, three delegates being elected from each Senatorial District, making a total membership of 168.

Although it does not carry the prestige afforded the Federal Constitution, the State Constitution is, nevertheless, a very vital document in the progress and well-being of the thirteen million citizens of this State, inasmuch as it is the basic law of the State and the framework upon which the State operates. It comes closer to the every-day life of the people than does the Federal Constitution and much closer than most people realize.

The State Constitution must, in its very nature, contain much more detail than is found in the Federal document. Besides providing a general Bill of Rights for the citizens of the State, the articles include the qualifications for voters; the powers and duties of the executive, the legislature and the various departments of the State Government; the courts; the common school system of the State; the military and general provisions regulating the political subdivisions of the State, such as counties and cities.

The first Constitutional Convention to be held after the Declaration of Independence sat originally at White Plains and eventually concluded its work in Kingston, in April, 1777. This Constitution was adopted on April 20th of that year.

Although there have been several revisions and many amendments, the main structure of the original Constitution has not been greatly altered. Since the adoption of the original Constitution in 1777, there have been, pursuant to law, six Constitutional Conventions in New York State. The results of these Conventions were that the Constitutions proposed by the Conventions of 1821, 1845 and 1894 were adopted by the people and those of 1866 and 1915 were rejected. The State of New York is now functioning under the Constitution as proposed in 1894 and ratified in the general election of that year. Since the Constitution was adopted there have been added some sixty amendments thereto.

While it is doubtful if anyone can prophesy with any degree of certainty as to what matters will be brought to the attention of the Convention which meets in Albany next April, it is probable that there will be a general review of our system of law enforcement in the expectation of a speedier and more effective apprehension and conviction of criminals.

There will probably also be a discussion of the possible rearrangement of our State judicial system. There will undoubtedly be presented for consideration suggestions for the amplification of the powers of the Legislature and of the people to enact social legislation which has grown tremendously in importance in the minds of the people since the Constitutional Convention of 1894.

The matter of the funded debts of the cities and counties of the State should unquestionably receive careful consideration, due to the fact that today a very large proportion of the tax rates of our local communities consist of interest and amortization of funded debts.

There will also be considerable discussion of the question of the public highways of the State, the need for which was slight in 1894 as compared to the terrific volume of traffic moving over our highways today.

Largely due to the inability of the last several Legislatures to enact suitable statutes, the question of re-apportionment of Senate and Assembly districts to provide for a fair and equal representation will undoubtedly receive thorough attention.

The question may be asked, "Why does not the Legislature propose amendments and submit them to the people for ratification, instead of the elaborate machinery of the Constitutional Convention?" The answer to that is that the Legislature does this, so far as it is possible, but such amendment to the

Constitution is bound to be piecemeal, whereas the Convention itself, having no other reason for its existence, will spend its entire time upon constitutional questions as distinguished from the multiplicity of laws, both local and general, which each Legislature must consider in addition to constitutional questions. The Convention can study and consider the Constitution as a whole rather than specific details.

Another advantage which accrues to a Constitutional Convention is the fact that from the early days of the history of this State, Constitutional Conventions have attracted a high type of delegate. The Constitution wisely permits the selection of many public officers, including Legislators, Supreme Court Justices and men of similar experience and ability. This year's list of delegates, both district and at-large, contains a large proportion of able, patriotic citizens of the necessary experience and ability.

Upon the conclusion of its work, the Convention will submit all proposals for amendments or changes to the Constitution to the people of the State for ratification or rejection. If the Convention adjourns six weeks prior to the regular fall election, the proposals may be submitted at that election; otherwise a special election must be called.

In his opening address to the Convention of 1915, the President of the Convention, Elihu Root said:

"In our labors let us keep in mind that it is our duty, so far as our powers go, to preserve as well as to improve. While we seek to adapt the machinery of government to changing conditions, we are still to preserve the great body of rights and liberties which have grown through many centuries of political and juridicial development, and under which we have so long been blessed by peace, order, justice and individual liberty and opportunity. It is not for us to tear down institutions based upon the customs and growing out of the life of the people whom we serve, merely for the purpose of substituting in their place creations of our own devising, however confident we may feel in the success of the experiments we may contemplate."

It is to be hoped that these principles will govern the deliberations of the Convention of 1938.

Fraudulent "Remedies"

"NOW you can take off excess pounds the harmless, painless way. Why be laughed at because you are fat? Doctor Blank's Marvel Capsules will restore your figure to perfect dimensions. Write for particulars."

The English is a little more elegant than that of the medicine-men of a generation ago, who pitched their side-shows at county fairs and sold water, alcohol, and coloring matter as Chief Flying Cloud's Aromatic Spirits of Elixir at fifty cents a bottle. Different, too, are the sales methods, but to the vigilant Post Office Department the same word covers both. That word is "fraudulent."

For the modern medicine-man is as prolific as his more colorful predecessor, and he speaks mysteriously of glands, electricity, radium, and other modern secrets. Every year, says S. R. Winters in *Hygeia,* postal sleuths smoke out about fifty, break up a "sucker" business totaling about $5,000,000.

Some "remedies" are "neutral" in that they do neither harm nor good. Others are definitely injurious, some of them fatal. One of the latest antifat "cures" put out of business by the authorities came in the form of capsules that cost from $1.50 to $10, depending on the strength desired. Among other things, the capsules contained thyroid extract which, when taken indiscriminately by anyone who has diabetes, tuberculosis, or certain forms of heart disease or latent goiterous conditions, may result in death.

Another ingredient was phenolphthalein, a laxative given to producing violent skin eruptions.

The inventor-promoter of this "gift to women" is himself an extremely overweight gentleman who explained the apparent phenomenon by saying that he "just kept forgetting and neglecting to take the pills."

Another man who failed to heed the admonition "Physician, heal thyself" is the promoter of a "height-increaser" exhibited at a Century of Progress in Chicago.

It consisted of a harness by which short men with inferiority complexes could hang themselves from the bathroom light fixture, stretching the spine to desired proportions.

Its backer measures five feet, one inch—unstretched.

When the postal authorities pick up the scent of one of these fakers, a fraud order is issued against him, and the postmaster where he receives his mail is instructed to return all communications, stamping across them the tell-tale word "fraudulent." Each letter the faker mails is considered a separate offense, and he is liable to a fine of $1,000 and five years' imprisonment.

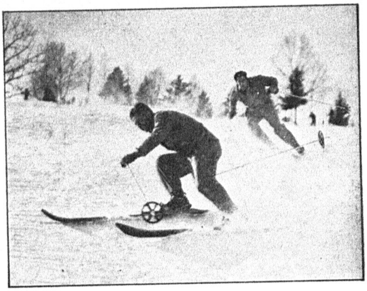
Even so, they are hard to keep down, chiefly because there are so many gullible people upon whom warnings are wasted.

Mr. Winters tells of a former Representative from West Virginia who swore that he had been cured of rheumatism by a smarting powder in his shoes. Tests showed that the smarting came from pepper.

It worked because it made the patient so uncomfortable he forgot about his rheumatism.

Snow Trains

Thousands Ride Winter Sports Specials Running to North Creek, Ticonderoga and Lake George.



SNOW trains, all of which were cancelled last season because of unfavorable snow conditions, lost none of their popularity through a year of inactivity. This year one or more wintersports special is being run each week from New York, Albany, or Schenectady to North Creek, Ticonderoga, Lake George, or the Laurentian Mountains of Quebec, 85 miles northwest of Montreal, carrying large crowds of outdoor sports enthusiasts to these winter playgrounds.

In 1936, the third year snow trains were operated by The Delaware and Hudson, 6,463 revenue passengers patronized fifteen trains running to North Creek. Seven week-end Pullman and day coach trains run from New York to North Creek carried 2,411 wintersports fans; 1,775 rode four specials originating at Albany; and 2,277 were handled on the four trains run from Schenectady.

This season the first snow train left Grand Central Terminal, New York, for the Laurentian Mountains Sunday evening, December 26, giving metropolitan area residents a week of winter sports at several Canadian points. The train, with 145 aboard, ran over The Delaware and Hudson from Troy to Montreal where the passengers ate a special breakfast in the dining room of Windsor Station before boarding regular Canadian Pacific coach trains for the balance of the trip to the winter resort of their choice: Piedmont, Ste. Marguerite, Val. Morin, Ste. Agathe, or Ste. Jovite. The Laurentian Mountain area is an ideal setting with ample facilities for all types of winter sports: skiing, tobogganing, ski-jumping, ski-joring, skating, curling and sleigh-driving, although trail and open slope skiing are the principal attractions to those using these trains. On the return trip passengers boarded the Pullmans at the sports resorts, proceeding direct to New York without changing cars.

Two more "Laurentian Specials" are scheduled for operation this year after this issue of *The Bulletin* goes to press: the first leaves New York February 18th, returning the 22nd; the second starts north March 11th, returning March 13th. Regular Passenger Trains Nos. 7, 8, 9, 10, 34, and 35 are carrying up to 150 wintersports fans daily between New York and Canadian points.

One train has been operated from Albany to Lake George, a village which, in addition to skiing, skating, and tobogganing, offers harness horse racing on a track at the foot of Amherst Street on the ice-covered lake. This special, run Sunday, January 23, under the sponsorship of W. M. Whitney Company's department store, was met by 2,000 residents of the area. A feature of the welcome was a megaphone address by W. H. Wilcox, the village's

Poised for the Downhill Run

86-year-old official town crier, dressed in the full livery of his office. Five ski trails, from 1½ to 3 miles long, have been laid out between the summit of Prospect Mountain and the village.

North Creek, destination of our first snow train in 1934, remains one of the most popular winter spots in the East. Beginning with the week end of December 31, 1937, Pullman and coach snow trains have been operated weekly from New York to North Creek, the four trains operated prior to the time this issue went to press having carried a total of 1,184 revenue passengers. One Schenectady-North Creek special accommodated 688. The success of Schenectady snow trains is in a large measure due to the cooperation of the Schenectady Wintersports Club which publicizes and handles ticket sales for the trains originating at that point. The record turnout of the 1938 season to date was the more than 900 handled on the Albany-North Creek snow train run January 16.

Situated at an elevation of 1,300 feet, near the base of 3,200-foot Gore Mountain, North Creek is an ideal winter playground. Between the summit of Gore Mountain, which can be reached by busses operating at frequent intervals from the station, and the village, are nine ski trails, varying in length from 7,050 feet to 24 miles, with a total of 50 miles in all, each of which is marked with the rating of the degree of skiing skill required to venture on it safely: novice, intermediate, expert, or distinctly expert. Just outside the village are knolls and slopes of varying heights and pitches for inexperienced skiers and tobogganers. A "ski-tow"—an automobile-powered endless rope—pulls skiers to the top of the slopes, thus conserving their energy for the more enjoyable downhill runs. Expert skiers may test their skill on a newly-constructed ski jump.

Skaters have but a ten-minute walk down Main Street to a large rink which is kept clear of snow by the village.

Thrills aplenty await tobogganers on the new slide which drops 175 feet at a very sharp angle, turns upward over a rise of 35 feet, and ends on the crest of a knoll from which point toboggans shoot out across the open slope for several hundred yards. Stop-watch timings indicate that from the instant the toboggan leaves the top until it is clear of the slide it averages 50 miles an hour. Upon this figure is based the estimate that at the bottom of the drop a toboggan attains a speed of 70 miles per hour. The slide is built in the form of a wooden trough, with high sides, eliminating any possibility of spills during the descent. A sprinkler system along its entire length insures a smooth coating of ice at all times. To eliminate the climb back up the steep slope, a sled powered by a drum on the rear wheel of a jacked-up automobile pulls toboggans and passengers up the hill.

Jump Turn on Skis

Another novelty at North Creek this year is a seven-dog team pulling a sled on which people may make a tour of the slopes.

The Barton Cross Country Ski Trail offers a particularly desirable trail for snow shoeing. This and other ski trails, as well as the many open slopes afford snow shoeing combined with excellent winter scenery.

As in previous years the steam-heated train remains at the station all day, a "hotel on wheels," available for lunch, lounging, and resting. Lunches and full course meals are served in the dining car at all hours.

Ticonderoga enters the winter sports picture this year for the first time, the first snow train having been operated to this historic area from Schenectady Sunday, January 23, to accommodate 618 revenue passengers. Other trains will be run to Ticonderoga from Schenectady, Albany, and New York, provided snow conditions are favorable and there is sufficient public demand for this service.

As a result of considerable work by the Ticonderoga Snow Club, eight ski trails, from 800 to 35,900 feet long, and two slalom courses, have been laid out on a chain of four mountains, "The Three Brothers" and the "Cobble," near historic old Fort Ticonderoga, all trails ending in an open area called the "Punch Bowl" located two miles southwest of the village. As is the case at North Creek, all ski trails are plainly marked with their ratings, length, width, grade, and descent in feet. Rising from the edges of the "Bowl" are open slopes of various pitches for skiers who prefer that type of territory. At the south end of the "Bowl" is a 300-foot toboggan slide, from the foot of which toboggans shoot far out over the slopes. At the center of the "Bowl" is a spacious club house with facilities for resting around a huge fireplace which is open on all four sides.

Each week there are ski races for novice, intermediate, and expert skiers, medals being awarded the winners in each class.

Looking Up Toboggan Slide

Should accidents occur, the Ticonderoga Ski Patrol, consisting of 60 men from Company "F" of the 102nd Medical Regiment, is constantly on duty with two specially built ambulance toboggans. This feature has gained high praise from winter sports fans who say they have a better sense of security in the knowledge that this well-trained group is looking after their safety.

The Ticonderoga Racing Association will present an ice harness racing meet on the local Wicker Track. Many leading stables of Northern New York will be represented at the meet. Horses are also available for ski-joring.

Ticonderoga offers ample opportunity to enjoy fishing through the ice on Lake Champlain. Holes are cut through the ice by the Snow Club and heated

(Continued on page 46)

At the Top of North Creek's Mile-a-Minute Toboggan Slide

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Freight Rates

THE *Wall Street Journal* recently published figures giving the costs charged for shipping a ton of freight one mile on the railroads of the United States and twelve foreign countries. They ranged from nearly three and one-half cents in France to only about three-quarters of one cent in Japan. This is a wide range, for the cost in France is not far from being five times as great as the cost in Japan.

The complete list included: France 3.48, Great Britain 2.73, Italy 2.71, Australia 2.50, Germany 2.48, China 2.19, Poland 2.02, Mexico 1.77, Argentina 1.74, India 1.08, Canada .98, United States .94, Japan .77.

Commenting on these figures *The Cleveland Trust Company Business Bulletin* says, "The last four are clearly in a class by themselves. It is interesting that two of them are Canada and the United States on this continent, which have high wage rates and closely similar railroad systems, while the two others are the Asiatic countries of India and Japan which have exceptionally low wage scales.

"There can be little doubt that we have in this country the most efficient railroad freight service in the world, and very nearly the lowest cost service. It has recently become too low in its charges if it is to continue to pay the high wages now in effect. American shippers can pay enough for freight service to enable the roads to operate profitably, and they will still be enjoying important advantages in shipping costs as compared with shippers in nearly all the other countries."

New York's Railroad Payroll

THE highly important part which the railroads play in maintaining and advancing the financial welfare of this State is illustrated strikingly in figures just published by the Associated Railroads of New York State. These figures reveal that the railroads paid out in wages to their employes in New York State $161,223,205 in 1936. Comparative figures for 1937 are not yet available.

The number of employes on the railroads' payrolls in New York State in 1936 was 97,573. This great number of railroad workers is more than one-half the total personnel of the regular army of the United States. In the preceding year (1935) the railroads' payroll was $132,758,512 and the number of employes 86,033. These figures show that the railroads' payroll increased in a year $28,464,693 and the number of employes was increased by 11,540.

"But for the current recession," the statement adds, "it is likely that the 1937 figures would show a further increase.

"If the average number of dependents on a railroad employe is taken at four, it will be seen that 487,865, or almost one-half million persons obtain their support from the pay envelopes of railroad employes in New York State. This grand total equals approximately the population of Washington, D. C., as given by the last federal census.

"The figures make clear how railroad money, paid in wages, furnished in large volume new life blood for the stream of local business and government service."

In New York State counties served by The Delaware and Hudson a total of $26,741,302 was paid in wages to employes of all railroads. This sum was divided by counties as follows:

County	*Employes*	*Payroll Payments*
Albany	8,123	$14,283,637
Broome	1,301	2,142,844
Chenango	438	651,568
Clinton	413	687,913
Delaware	259	229,199
Essex	156	203,716
Franklin	320	671,977
Otsego	1,414	2,297,080
Rensselaer	1,154	2,012,458
Saratoga	934	1,365,169
Schenectady	647	1,050,140
Schoharie	96	117,789
Warren	103	135,333
Washington	545	892,479
TOTAL	15,903	$26,741,302

Milk From a Tree

The Great Rubber Industry Started from Indian Boys' Ball Game

Reprinted from Socony-Vacuum Oil Company's Publication "Oil Power"

MORE than 400 years ago in a little village on the East Coast of South America—probably not far from where Trinidad now stands—Indian boys who were tossing a ball back and forth paused in their play to stare at a stranger—a stranger whose face was pale and whose garb was unlike anything any of them had ever seen. The stranger returned the stares with interest but most of his attention went to the curious resiliency of the ball with which the boys played. When it struck the hard ground or a tree it bounced. He bargained with the boys for the ball and was able to present to his commander, one Christopher Columbus, a sample of this curious product of the New World.

Explorers who followed Columbus' trail found many things about the resilient material. They found that Indians in the tropics wounded certain trees and collected the milky juice which dripped out. They smeared fabrics with the juice and the fabrics became waterproof. They covered earthen forms with the juice, waited until the milk congealed, broke the form and they had serviceable bottles. These early explorers had alert eyes for commercial possibilities in the new things they saw but they were obliged to report that the material—the French explorers called it "caoutchouc"—had to be used while it was fresh from the tree. After it had congealed it defied efforts to fabricate it.

Scientists in France—and in other lands—tried earnestly to discover suitable solvents for the congealed latex. A sample was sent to a famous English scientist, Joseph Priestley (he discovered oxygen) in 1770. Priestley found that the chunks of material could be used to erase pencil marks and gave it the name rubber.

Twenty years after Priestley gave rubber its name, an Englishman, Samuel Peal, invented a process for waterproofing fabrics by treatment with rubber dissolved in turpentine. It was not until 1820, however, that the first plant for the manufacture of this waterproofed material was started in England—one Thomas Hancock was the pioneer. Hancock, by the way, invented the masticator, a machine for kneading and softening rubber and the calendar, designed to sheet rubber and coat fabric with it. Both the masticator and the calendar are still important in rubber processing. Hancock, also, was the first to use molds with which to shape rubber articles under heat and pressure. Hancock had a rival, one Charles Mackintosh, who started a similar factory in Glasgow in 1823. Mackintosh made, among other things, raincoats. A type of raincoat still bears his name!

Goodrich Photo

Tapping a Rubber Tree

By the beginning of the 19th century America had begun to import fabricated rubber—Mackintosh's raincoats from the Glasgow factory, rubber bottles made by the South American Indians. In 1832 a rubber factory was started in Roxbury, Mass. Nothing made with rubber, however, was very satisfactory. In cold weather the material hardened, became brittle, cracked and broke. In the summer rubber articles became sticky, softened and then gave off unpleasant odors. The rubber trade was in a bad way when several things happened. In 1832 a German scientist, F. Luderdorff, found that if flowers of sulphur were added to the turpentine used to dissolve the rubber, the rubber became firmer. An American experimenter, Nathaniel Hayward, found, about the same time, that flowers of sulphur made the rubber less sticky.

Then Charles Goodyear, an inventor, tackled the problem. He experienced many failures until he met Hayward in 1838. Hayward told him of the promising results of experiments in which rubber was spread with flowers of sulphur and then dried in the sun. Goodyear added white lead and sulphur to rubber and cooked the mixture on his kitchen stove. He found that he had to have rather exact control of temperature but the experiments in his kitchen laboratory showed that he was on the right track. The rubber industry, in fact, may be said to have had its real start in Goodyear's kitchen, a cold day in January, 1839. Subsequent experiments showed that rubber, mixed with sulphur and white lead and heated for a definite time at temperatures somewhat above 212 degrees, lost its tackiness and, if stretched, returned to about its original form. It was no longer brittle in cold weather and sticky and soft in warm. The process came to be known as vulcanization.

Goodyear's discovery won the world for rubber. Rubber factories were opened in New England and in New Jersey—by 1858 the value of rubber goods made in this country totalled nearly $5,000,000 and gave employment to 10,000 persons. The first rubber factory to be established west of the Alleghany mountains was started in Akron in 1870 by Dr. Benjamin Franklin Goodrich.

For a long time—and this is the history of many industries—the manufacture of rubber was very much a "rule of thumb" matter. Workmen, particularly the compounders, laid great store by "secrets" passed on to them by their elders in the trade or worked out by shop experience and crude experimentation. Much that still influences the trade developed from this era—the value of many of the materials with which rubber is blended today was discovered by these craftsmen. They discovered, too, the value and something of the possibilities of what the trade calls "accelerators"—materials which, added to the mixtures, shorten the time of vulcanization or lessen the amount of heat needed. To the development of these accelerators much of the present-day durability of rubber products is due. It was not until skilled and orderly research became the rule in the rubber industry, that the full value of materials for use in rubber compounding was realized.

Rubber itself, comes from the milky juice of certain trees which grow in the tropics. There are many plants and trees which yield juice (latex—Latin word for "fluid") capable of producing rubber. Milkweed, for example, has some rubber latex in its milk. The absence of desirable qualities in the rubber hydro-carbon extracted from many of these is one of the major handicaps against their extended use. Until about 1912 most of the world's supply of rubber came from wild shrubs and vines and trees, the best grades being from the *Hevea* tree indigenous to Brazil. At that time, however, the world knew about 20 different South American wild rubbers and about 50 characterized as African rubbers. Relatively little of the world's rubber production today comes from wild trees.

Most rubber used today is plantation grown. When rubber began to become commercially significant, Brazil, realizing the importance of its *Hevea Brasiliensis* guarded jealously against any effort to take seeds or seedlings out of the country. An Englishman, Sir Henry Wickham, smuggled 70,000 carefully selected *Hevea* seeds out of Brazil in 1876 and planted them in Kew Botanical gardens in London. Many of the seeds thrived and plantations were started with the seedlings in Ceylon and elsewhere in the Far East. Today, rubber acreage in the Far East covers from 6,000 to 8,000 square miles. Brazil is still a source of rubber but its 10,000 acres of rubber land compares oddly with the the 3,300,000 acres devoted to rubber cultivation in British Malaya and the 3,500,000 acres of rubber land in Netherland East Indies. Rubber is produced today in a region 10 degrees North to 10 degrees South Latitude—a belt about 1,400 miles wide encircling the earth.

Various lands have developed various methods of collecting the latex from the trees. In some regions the tree was cut with an axe or knife and the juice which exuded from the wound was collected in a pit dug by the roots. Today, the cutting and collecting are done with much care to avoid injury to the tree and contamination of the product. The trees are cut, with a tool similar to a carpenter's gouge, diagonally from a point four and one-half feet above the ground and down-

Goodyear Photo

Native Gathering Latex

ward about one-third of the way around the tree. The first cutting is a channel about a quarter of an inch wide down which the juice drips to be caught in a porcelain container about the size of a teacup. The juice does not "flow"—a good tree will yield about three drops a second, decreasing in an hour to about one drop a minute. A single tapping will yield about one fluid ounce of the juice, containing about one-third of an ounce of dry rubber. On succeeding mornings the tapper makes a new cut, slicing a layer of bark from the surface exposed at the previous tapping and in that way starts a new supply of latex into the cup. The annual yield per tree is about four pounds. There are from 80 to 125 trees in an acre and an acre of good trees will yield about 400 pounds of dry rubber a year. Methods of grafting the buds of high yield trees on selected seedlings have some times produced yields of 800 to 1,000 pounds an acre. The tapping does not seem to injure the trees —trees are still yielding latex after 30 years.

The next step is to separate the true rubber from the latex. Vinegar added to milk will curdle or coagulate it—and this method coagulates the rubber. A day's production of a plantation is placed in tile or earthenware tanks for the necessary coagulation process. An equal volume of water is mixed with the latex and a half pound of acetic acid is added to each 100 pounds of rubber content. A little bisulphite of soda is added if it is desired to bleach the rubber. Coagulation starts immediately. In a quarter of an hour the milk is set to a slime. In a half hour it is a jelly. After two hours it is completely coagulated. Another method of coagulation is to convert the latex into a fine spray in a hot room where the water will evaporate. Wild rubber is sometimes coagulated by dipping a paddle in it until a ball or biscuit is formed. This is smoked until it hardens. Rubber made this way is still on the world's markets.

To make what is called "pale crepe" the coagulated latex is squeezed between corrugated iron rollers, revolving at uneven speeds. At the same time a stream of water plays upon it. A sort of whey, free of rubber, is washed out. Two weeks of drying in the air removes the 20 per cent of water left in the crepe. To produce the grade known as "smoked sheets" the wet sheets are dried in a heated, smoky atmosphere. There are several grades of crude rubber, rated by their appearance and color as well as by the extent to which the plantation processes have removed the various impurities. Most of the rubber, however, is either ribbed smoked sheet or crepe, shipped in boxes or bales weighing about 220 pounds to the rubber factories of the world.

Railroad Safety

IF you want to know where you are most likely to meet accidental death, ask the insurance companies. Year by year, day in and day out, they study accident statistics until their prophecies on fatalities become almost as exact as science. They can't afford to guess!

The remarkable safety record of the American railroads not only is a matter of pride among railroaders themselves and reason enough for people to choose this form of transportation, but it has been figured out on an actual dollars-and-cents basis in insurance policies. An authoritative, convincing example is given by the St. Louis *Globe Democrat* in an accident insurance policy which it offers to its subscribers at a cost of less than one cent a day, and which it describes—

"This famous all-coverage policy pays:

$10,000.00 for loss of life or dismemberment resulting from the wrecking of a railroad passenger car or passenger steamboat or steamship.

$3,000.00 for loss of life or dismemberment resulting from the wrecking of a street car, elevated or subway, or taxicab.

$1,500.00 for loss of life or dismemberment resulting from: Being struck, knocked down or run over while a pedestrian, the wreck of a bus, jitney or passenger elevator, the burning of a building, the collapse of walls, being struck by lightning, cyclone or tornado.

$1,000.00 for loss of life or dismemberment resulting from: The wreck of any private, pleasure type automobile, commercial vehicle or bicycle; or being struck by a falling object; or by accidental drowning.

$100.00 for loss of life or dismemberment resulting from any accident not mentioned above."

What a thrilling story of railroad safety in terms of cold, hard cash!—*B. & O. Magazine.*

"Hot Magic"

DID you ever wonder why the fire engines go out so often? You need wonder no more, if you will read an article called "Hot Magic" in a recent issue of the *Family Circle*.

Spontaneous ignition is vaguely familiar to many of us as a hazard of damp hay in barns or, perhaps, painter's overalls in the closet. But by believing that this threat is limited to a small field, thousands of householders constantly lay themselves open to treacherous fires.

In New Jersey not long ago a man got a faint odor of something burning in his cellar. Quite by accident he discovered the cause. A stack of old newspapers under the stairs was smouldering from the inside out, and if he hadn't happened to bump into the pile and knock some off the top, he would have had a dangerous fire.

Any vegetable or animal oil on a combustible material is a potential menace, because natural oxidation of that oil generates heat which may ignite the material.

In Massachusetts a woman one afternoon discovered a mattress smoking furiously. Dousing it with water, she threw it into the yard to dry. Next morning she discovered that it was smoking again. She telephoned the firehouse and when the firemen ripped open the mattress, it burst into flame in seven different places! Somewhere in the process of manufacture, oil may have been spilled on the cotton stuffing and eventually the hot-magic trick came off. Yet it could happen even more directly. For instance, castor oil or camphorated oil used for a sick person might be spilled on a bed, soak into the mattress, and later cause trouble.

Even stranger things have occurred. In Maine a woman went into her attic to get an old dress. When she took the lid off the basket in which the dress was stored, she was startled to find nothing but a handful of ashes. That dress had been made of black silk, a notorious breeder of spontaneous ignition. Indeed, there's a record of a shipment of silk which caught fire once on the ship at sea and twice in the warehouse where it was stored.

One could go on indefinitely citing such cases of hot magic: a raincoat hung in a closet; a bunch of Florida moss dipped in varnish for decorative purposes; an old pile of furnace ashes kept too long in a damp cellar; chips in the bag of a floor shaver used on a waxed floor (this one cost 48 lives in a Pittsburgh home for the aged); floor sweepings (especially when mixed with oily dust-laying compounds) waiting in a bag for the trash collector. Probably the fastest case of spontaneous ignition on record occurred in a railroad station where a closet burst into flame one hour after a painter hung his oily overalls there. And one of the oddest outbreaks involved a keg of iron filings kept on an oiled floor. The oxidation of the oil heated the iron to the point where it ignited the wooden keg.

Snow Trains

(Continued from page 41)

fishing cabins are available out on the Lake. Of the more than 600 who rode the Schenectady-Ticonderoga snow train 75 tried their luck at ice fishing, many bringing home sizeable catches of northern pike, perch, pickerel, and pike-perch.

Competent ski instructors conduct classes at North Creek, Ticonderoga, and Lake George, giving individual and group lessons in any or all phases of the sport.

Despite strenuous outdoor activity all day long, snow train passengers are far from exhausted on the return trips. Every car has its group of singers, while in the baggage cars impromptu programs of singing, dancing, and instrumental music are in progress right up to the end of the run.

Judging by past and present indications, snow trains are among the most popular of the many recent innovations in railroading. Each year since their inception they have increased in popularity. Long famed as "A Summer Paradise," the Adirondacks now promise to establish themselves as the Winter Sports Capital of the East.

Skiers Resting at Foot of Open Slopes

Clicks from the Rails

Prisoner in a Box Car

for two days, while the car moved from Rouses Point to Wilkes-Barre, a tired, hungry, and shivering negro was arrested for vagrancy. The man said he had entered the car at Rouses Point and was imprisoned when a switch engine knocked the door shut. Despite repeated attempts to attract someone's attention during the two-day trip, he could not gain his freedom until the car had traveled nearly 400 miles.

✣

A Locomotive, Lost

in Kiowa Creek, Colorado, in 1878, has never been found. During a severe rain storm, which raised streams to flood stage, a bridge gave way under a locomotive, plunging it and several cars into the creek. After the storm all attempts to locate the locomotive failed; long iron rods were sunk in the spot without touching anything solid. Apparently the locomotive had sunk out of reach in quicksand.

✣

The Long Distance Record

for commuters is probably held by L. J. Schlichting, who makes a 2,000-mile rail trip from Chicago to Beachwood, N. J., and return every week end in the summer. A native of New Jersey, Mr. Schlichting missed the seashore when business interests forced him to move to Chicago. Now, by taking advantage of Pullman sleeper service on fast trains, he is able to be at the seashore Saturday and Sunday and still be back at his desk in Chicago on Monday morning.

✣

Fifty Years' Service

is the average of the three Chandler brothers who are all Illinois Central enginemen working out of Jackson, Tenn. Lee has served 52 years, Colie over 50, and the "kid brother," Paul, 48.

Bulgaria's Royal Engineer,

King Boris, who has been running locomotives for 27 years, was at the throttle of two new British engines pulling the *Coronation Scot* from Euston to Bletchley and return. On the outward trip the King maintained an average speed of 62.3 miles per hour, attaining a maximum of 88 at Cheddington, and returned at a 55-mile an hour average, with a top speed of 80. At the end of the trip Sir Josiah Stamp, President of the London, Midland and Scottish Railway, presented an 18-inch model of the locomotive *Coronation* to the King.

✣

A Seven-Year Old Fire,

smoldering under an Erie yard track at Salamanca, N. Y., is to be extinguished. Spontaneous combustion is believed to have been responsible for the fire in coal used in an old fill 13 feet below track level. Heat from the underground fire has melted snow in the area for seven winters and provided a warm spot for switchmen to stand on. The condition was not considered serious enough to warrant action until recently when the tracks settled. Before attempting to fill the settlement, a clam shell will remove the burning coals.

✣

A Crossing Watchman,

accustomed to warning people from the path of moving trains, saved the lives of some of the nine people sleeping in a burning building. Just after reporting for work at an Erie crossing in Hackensack, N. J., Frank Beam saw smoke pouring from the second story of a nearby dwelling. Rushing to the house, Beam blew his whistle until an occupant was aroused and spread the alarm. After the blaze was extinguished, Fire Chief Walsh said the watchman's alertness had undoubtedly saved the building and its occupants.

Six Locomotives,

with 4-8-4-4-8-4 wheel arrangement, being built in England for the Kenya & Uganda (Africa) Railways, will develop 46,000 pounds tractive effort and are said to be the largest meter (39.37-inch) gauge engines in the world. Modern features will include: Thermic syphons, roller bearings on all engine and trailer truck wheels, automatic fire doors, exhaust injectors. They are designed to permit easy conversion to 3′ 6″ gauge.

✣

Giant Watermelons,

weighing over 100 pounds apiece and raised in Parker County, Texas, are being shipped to all parts of the country by Railway Express. Although grown ever since the County was first settled in 1856, they were never popular until after ten were shown at the Louisiana Purchase Exposition in St. Louis in 1904. This year 1,500 carloads of these "Jumbo Melons," commanding prices as high as $7.50 each, were forwarded by express.

✣

Train Dispatcher 54 Years

Frank J. Safer, of the Wabash, claims the long service record for employes of this classification. Since his promotion from telegrapher to dispatcher in April, 1883, Mr. Safer claims to have issued more than 1,000,000 train orders. He advises young dispatchers: "Never take a chance; it doesn't pay. Better be censured for a delay than for an accident. And don't worry; you're not paid for that, especially when off duty."

✣

Coffee in Bed

is part of the regular service given sleeping car passengers on the Louisiana and Arkansas. A tray containing coffee, sugar, and cream is passed in to the passenger as soon as he is awakened by the porter.

Circumstances

PEOPLE are always blaming their circumstances for what they are. I don't believe in circumstances. The people who get on in this world are the people who get up and look for the circumstances they want, and, if they can't find them, make them. — GEORGE BERNARD SHAW.